

**AN INTERVENTION PROGRAMME TO OPTIMISE
THE COGNITIVE DEVELOPMENT OF GRADE R-
LEARNERS: A BOUNDED PILOT STUDY**

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DECLARATION

I, **Stefanie-Mariè Esterhuizen** declare that “*An intervention programme to optimise the cognitive development of Grade R-learners: A bounded pilot study*” is my own work and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

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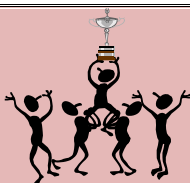
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OPSOMMING

Dit is dringend noodsaaklik dat Suid-Afrikaanse leerders voorberei word om binne die konteks van 'n vinnig-veranderende wêreld met selfvertroue te kan deelneem en funksioneer. Die kurrikulum van die Suid-Afrikaanse Onderwysstelsel benadruk die noodsaaklikheid daarvan om leerders se denkontwikkeling te verbeter, selfs so jonk as voorskools, ten einde hulle in staat te stel om kreatiewe en kritiese landsburgers te word wat doelgerigte lewens in 'n veilige en nie-bevooroordeelde omgewing lei. Ongeag deurlopende pogings van onderwysers om leerders se denkontwikkeling te verbeter, toon onlangse navorsingstudies aan dat denkvaardighede in Suid-Afrikaanse skole nie voldoende ontwikkel word nie.

Hierdie studie is onderneem om die vlak van denkontwikkeling (kognitiewe- en meta-kognitiewe-vaardighede en -strategieë, kognitiewe-funksies en nie-intellektuele faktore) van Graad R-leerders te bepaal, asook die effek wat die intervensieprogram, ***Cognitive Enhancement Programme for Pre-schoolers (CEPP)***, op hul denkontwikkeling het.

Deur middel van 'n literatuurstudie is ondersoek ingestel of, en in watter mate, die denke van Graad R-leerders ontwikkel word. In aansluiting hierby is bepaal oor watter kognitiewe- en meta-kognitiewe-denkvaardighede en strategieë, kognitiewe-funksies en nie-intellektuele faktore Graad R-leerders moet beskik vir effektiewe denkontwikkeling. In aansluiting hierby is die rol van mediasie vir die optimalisering van denkontwikkeling ondersoek.

'n Gelyk-lopende gemengde metode-ontwerp is tydens die implementering van die navorsing gebruik. Intervensie-navorsing binne 'n quasi (kwasi)-eksperimentele ontwerp is toegepas. Dataversameling deur middel van 'n kwantitatiewe strategie (quasi (kwasi)-eksperimentele navorsing) en 'n kwalitatiewe strategie (observasie-studie), is gelyktydig uitgevoer. Deur middel van gerieflikheidsteekproefneming is een Graad R-klas met twintig leerders aan 'n voortoets onderwerp om hul vlak van denkontwikkeling te bepaal. Die resultate van die voortoets sowel as die observasies wat tydens die voortoets onderneem is, het aangetoon dat die leerders probleme ten opsigte van denkontwikkeling ervaar. Op grond van die voortoets-resultate is

tien van die twintig leerders doelgerig ten opsigte van prestasie in twee eksperimentele groepe, Eksperimentele Groep A en Eksperimentele Groep B, bestaande uit vyf deelnemers elk, verdeel. Eksperimentele Groep A en Eksperimentele Groep B het elk vir twaalf weke op rotasie-basis aan die **CEPP**-intervensie wat op die beginsels van mediasie gebaseer is, deelgeneem, waartydens doelbewus gepoog is om hul denkontwikkeling te verbeter. Albei groepe het 'n na-toets en 'n verdere (retensie) na-toets afgelê. Bykomend tot die toetsdata is waarnemings in die formaat van gestruktureerde lopende en anekdotiese rekords, sowel as reflektiewe notas gebruik om 'n beter begrip van die aard en kwaliteit van die denkontwikkeling van die leerders te verkry, en die effek van die **CEPP**-intervensie op hul denkontwikkeling te bepaal.

Die denkontwikkeling van Graad R-leerders wat aan hierdie studie deelgeneem het, is verbeter, wat 'n duidelike aanduiding is dat denkontwikkeling geoptimaliseer kan word wanneer onderrig op die beginsels van mediasie gebaseer word.

Die sleutelwoorde wat my studie begelei het was:

kognitiewe ontwikkeling	kognitiewe funksies	denkvaardighede
denkontwikkeling	nie-intellektuele faktore	
kritiese denke	kultuur van denke	mediasie
dinamiese assessering	interaktiewe assessering	voorbereidingsjaar
vroeë kinderontwikkeling	voorskoolse ontwikkeling	Learning Propensity Assessment Device
Children's Inferential Thinking Modifiability Test		

SUMMARY

It is imperative to prepare South African learners to participate and function confidently within the context of a rapidly changing world. The curriculum of the South African Education System emphasises the significance of optimising learners' cognitive development as early as pre-school age to enable them to become creative and critical citizens who lead purposeful lives in a safe and prejudice-free environment. Despite continuous efforts by educators to optimise cognitive development, recently executed research studies indicate that cognitive development has not been adequately optimised in South African schools.

This study was undertaken to establish the cognitive development level (cognitive and meta-cognitive skills and strategies, cognitive functions and non-intellective factors) of Grade R-learners and to determine the effect of an intervention programme, the ***Cognitive Enhancement Programme for Pre-schoolers (CEPP)***, on their cognitive development.

By means of a literature study, I investigated whether, to what extent the cognitive development of Grade R-learners was taking place, and established which cognitive and meta-cognitive thinking skills and strategies, cognitive functions and non-intellective factors are required for effective cognitive development among Grade R-learners. In addition to this, the role of mediation for optimising cognitive development was investigated.

A concurrent embedded mixed methods design was conducted in the implementation of the research. Intervention research within a quasi-experimental research design was applied. The data collection by means of a quantitative strategy (quasi-experimental research) and qualitative strategy (observation study) was executed simultaneously. By means of convenient sampling, one Grade R-class with twenty learners was subjected to a pre-test to establish their cognitive developmental level. The test results as well as the observations conducted during the pre-test revealed that the learners experienced problems related to their cognitive development. Ten of the twenty learners were then divided purposively based on their test performance into two experimental groups, Experimental Group A and Experimental Group B consisting of five participants each. Experimental group A and Experimental

Group B took part in the **CEPP** intervention based on the principles of mediation on a rotational basis over a period of twelve weeks, during which intentional attempts were made to optimise their cognitive development. Both groups completed a post-test and delayed post-test (retention) to determine the effect of the **CEPP** intervention on their cognitive development. In addition to the test results, observations in the form of structured running and anecdotal records and reflective notes were utilised to understand the nature and quality of the cognitive development of the learners better. Furthermore, the effect of the intervention on their cognitive development was established.

The cognitive development of Grade R-learners who participated in this study was optimised, which is a clear indication that cognitive capacity can be optimised when instruction is based on the principles of mediation.

Key words that guided my study were:

cognitive development	cognitive functions non-intellectual factors	thinking skills
critical thinking	culture of thinking	mediation
dynamic assessment	interactive assessment	reception / preparatory year
early childhood development	pre-school development	Learning Propensity Assessment Device
Children's Inferential Thinking Modifiability Test		

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ACRONYMS

Acronym	Definition
CAPS	Curriculum and Assessment Policy Statement
CEPP	Cognitive Enhancement Programme for Pre-Schoolers
CITM	The Children's Inferential Thinking Modifiability Test (CITM) is a strategy based dynamic assessment procedure that attempts to determine how much learners have benefited from a mediational teaching approach.
DA	Dynamic assessment is assessment by means of an active teaching process concerning a learner's thinking, perception, learning and problem-solving. It involves a test-teach-test approach.
MLE	Mediated Learning Experience is an interactional process in which the mediator (competent, skilled adult, teacher, facilitator or even a peer) intervenes between the learner and a set of stimuli in order to modify the latter by changing their frequency, order, intensity.
OBE	Outcomes Based Education
SCM	Structural Cognitive Modifiability
ST	Static Tests
PIRLS	Progress in International Reading Literacy Study
WKOD	Wes-Kaap Onderwysdepartement
ZPD	Zone of Proximal Development: That stage in a child's life where he cannot yet master something and will not be able to perform without assistance from an experienced adult.